

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 and 7-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimura (US 2002/0033557, of record) and further in view of Dollinger (WO92/20538, of record), Ohtsuka (JP 2000-290629, of record), and Asahara (US 5532319, of record).

Hashimura is directed to a tire laminate comprised of (a) an innerliner formed of a thermoplastic elastomer and (ii) an adhesive composition having a thickness between 1 and 100 microns (Paragraph 34). In describing the adhesive composition, Hashimura gives a plurality of examples and suggests that the adhesive is not particularly limited (Paragraphs 34 and 35). While applicant fails to expressly disclose the use of a thermoplastic elastomer as the adhesive, such a material represents a well known adhesive material that has been previously used to adhere innerliners to additional rubber layers, as shown for example by Dollinger (Page 8, Lines 9-18). It is emphasized that Hashimura specifically states that the adhesive material is not critical and in view of Dollinger, thermoplastic elastomers are recognized as being suitable adhesive materials when bonding innerliners to additional rubber layers. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of

Art Unit: 1791

the invention would have found it obvious to form the adhesive material of Hashimura as a thermoplastic elastomer.

As to the tackiness of the adhesive composition, Hashimura suggests that a high tackiness is desired but not so high as to complicate the handling of the assembly (Paragraph 4). One of ordinary skill in the art at the time of the invention would have recognized such language as including adhesive compositions having a tack to a diene rubber of at least 5 N, it being noted that applicant describes a similar rationale in selecting an adhesive that is not overly tacky. Additionally, the adhesive composition of Hashimura, in view of Dollinger, Ohtsuka, and Asahara, is substantially the same as that of the claimed invention- one of ordinary skill in the art at the time of the invention would have expected said adhesive to have similar self tack properties, as compared to the adhesive of the claimed invention. In this regard, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed properties. It is noted that the examples in Table 1 are not persuasive since multiple parameters are varied between respective examples (e.g. components and amounts) and it is unclear if the realized benefits are a result of any single material/amount or a combination of materials/amounts.

In regards to the adhesive composition, it is noted that Hashimura does suggest rubber compositions that are modified with epoxy groups (Paragraph 35). Being that a thermoplastic elastomer is a blend of a thermoplastic resin and a rubber component, one of ordinary skill in the art at the time of the invention would have found it obvious to use such a modified rubber in a thermoplastic elastomer. While the reference fails to

Art Unit: 1791

expressly disclose the oxirane oxygen content, the claimed range is consistent with epoxy modified copolymers used in adhesive compositions, as shown for example by Ohtsuka (Abstract)- one of ordinary skill in the art at the time of the invention would have found it obvious to form the epoxy modified copolymer with an oxirane oxygen content between 1 and 3 percent by weight.

Furthermore, Hashimura teaches the inclusion of a tackifier, such as a terpene resin and an aromatically modified terpene resin, in said adhesive composition (Paragraph 40). While the reference fails to expressly disclose the molecular weight and the softening point, the broad ranges of the claimed invention are consistent with these terpene resins used in adhesive compositions, as shown for example by Asahara (Column 8, Lines 41-45). It is emphasized that Hashimura suggests the use of both terpene resins and a fair reading of the reference includes compositions in which both resins are included as it is well recognized in the tire industry that such disclosures are directed to "at least one" additive. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include terpene resins in accordance to the claimed invention (including claimed loading relationship as Table 1 fails to provide a conclusive showing of unexpected results).

It is additionally noted that the adhesive composition of Hashimura can include an organic peroxide (Paragraph 36). One of ordinary skill in the art at the time of the invention would have expected the peroxide of Hashimura to have a half life

Art Unit: 1791

temperature in accordance to the claimed invention since it is identical to that disclosed by the claimed invention (e.g. 2,5 dimethyl-2,5-di(t-butylperoxy)hexane).

Lastly, with respect to the independent claim, the use of stearic acid, oleic acid, or metal salts (internal mold release agents) in tire compositions, including adhesives, is extremely well known and conventional to provide a high degree of adhesion. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include any of the above noted mold release agents. It is further noted that the rationale for including such a well known additive does not have to be the same as that disclosed by applicant.

Regarding claims 3 and 9, the thermoplastic resin of the innerliner can be a polyamide (Paragraph 17).

As to claims 4 and 10-12, Hashimura suggests the use of brominated isobutylene-p-methylstyrene (Paragraph 20).

With respect to claims 5, 13, and 14, Hashimura suggests the use of dipentene resins or other terpene resins (Paragraph 40).

As to claims 7 and 15-19, Hashimura suggests the use of 2,5 dimethyl-2,5-di(t-butylperoxy)hexane (Paragraph 36).

Regarding claim 21, Hashimura suggests the inclusion of an aromatic hydrocarbon modified terpene resin, such as a dipentene resin. In such an instance, vinyl moieties represent one of the most conventionally used hydrocarbon groups when forming modified polymers. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to use

Art Unit: 1791

a vinyl moiety to form the hydrocarbon modification disclosed by Hashimura. Lastly, if the aromatically modified terpene resin functions as the terpene resin (disclosed as component A), then the claims describe embodiments in which only said resin is included as the tackifier (B can be zero).

Response to Amendment

3. The declaration under 37 CFR 1.132 filed October 13, 2009 is insufficient to overcome the rejection of claims 1-5 and 7-21 based upon as set forth in the last Office action. In particular, each of Comparative Examples 2 and 4 have “self tack” and “tack with carcass” properties that satisfy the claimed invention and thus, it is unclear how Table A establishes a conclusive showing of unexpected results for the claimed range. It is further noted that the comparative examples actually demonstrate improved self tack (as high as approximately 30%) and thus, it appears that there is actually a trade off in properties as compared to the inventive example. Thus, the aforementioned trade off in properties is not seen to establish a conclusive showing of unexpected results, especially when each of Comparative Examples 2 and 4 have properties that satisfy the claimed ranges.

Response to Arguments

4. Applicant's arguments filed October 13, 2009 have been fully considered but they are not persuasive. Applicant primarily argues that the important aspects of the claimed invention reside in the use of a terpene resin and a modified terpene resin in a weight ratio between 70/30 and 50/50. These arguments have been addressed in the

Art Unit: 1791

Response to Amendment above and in the Response to Amendment section on Page 6 of the previous communication mailed on July 28, 2009.

It is particularly noted that applicant points to Comparative Example IV and argues that self tack and tack with the carcass are inferior to those obtained in the inventive example. However, this does not establish a conclusive showing of unexpected results for a ratio below 70/30 as required by the claimed invention. Looking at Comparative Example IV, which has a ratio greater than 70/30, there does not appear to be an unexpected result associated with the claimed ratio since there is an approximately 10% improvement in self tack and an approximately 19% decrease in tack with the carcass (comparing comparative example to inventive example). It is unclear how such a trade off in properties can be used to establish a conclusive showing of unexpected results, especially when each of the self tack and tack with carcass demonstrated by Comparative Example IV are within the ranges set forth by the claimed invention. It is further noted that Comparative Example II, which only includes a single terpene resin, demonstrates a self tack and tack with carcass that satisfy the claimed invention, wherein the self tack is nearly 30% greater than the inventive example. Thus, applicant has failed to establish a criticality for a ratio between 70/30 and 50/50.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1791

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